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EXAMINER

ZHENG, LOIS L

ART UNIT PAPER NUMBER

1742

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,240

Applicant(s)

COCHRAN, DUSTIN A.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 16, 17 and 19-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 16, 17 and 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1, 16-17 and 19 are amended in view of the amendment filed 30 May 2006. Claim 18 is canceled in view of the amendment. New claims 21-23 are added in view of the amendment. Therefore, claims 1-10, 16-17 and 19-23 are currently under examination.

Status of Previous Rejections

2. Rejection of claim 17 under 35 U.S.C. 112, second paragraph, is withdrawn in view of the amendment filed 30 May 2006.

Claim Objections

3. Claims 19-20 are objected to because they depended on canceled claim 18.

4. In claim 23, "adapted to be lower on top of the workpiece" should be changed to "adapted to be lowered on top of the workpiece".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-10, 16-17, 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacLeod et al. US 6,267,869 B1(MacLeod) in view of FR 2,436,643 A1(FR'643).

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MacLeod teaches an electrochemical machining device for forming patterns/grooves on the internal surface of a cylindrical workpiece(abstract, Fig. 2). MacLeod teaches that a bearing with a shaft with groove patterns is inserted into the workpiece. During electrochemical machining, grooves are formed on the internal surfaces of the cylindrical workpiece(col. 3 line 28 – col. 5 line 21).

However, MacLeod does not explicitly teach the claimed pressurized air chamber and the claimed expandable diaphragm.

FR'643 teaches a locking device for cylindrical bodies(title). The locking device comprises an elastic hollow toric ring(i.e. a pressurized fluid chamber)(page 2 last paragraph, abstract) formed by an elastic material(i.e. an expandable diaphragm) configured to position the workpiece radially in response to the pressurized fluid being released into the elastic hollow toric ring(Fig. 1 numeral 5).

Regarding claim 1, one of ordinary skill in the art would have found it obvious to have incorporated the locking device of FR'643 into the electrochemical machining device of MacLeod in order to securely position the cylindrical workpiece as taught by FR'643. Therefore, the bearing with a shaft and the locking device as taught by MacLeod in view of FR'643 reads on the claimed system.

In addition, even though MacLeod in view of FR'643 do not explicitly teach that the pressurized fluid is air, one of ordinary skill in the art would have found it obvious that the pressurized fluid encompass both liquid and gas such as air.

Furthermore, the examiner asserts that the apparatus of MacLeod in view of FR'643 is capable of positioning the workpiece by the system to permit electrochemical machining of the electrode assembly as recited in amended claim 1.

Regarding claim 16, the elastic hollow toric ring as taught by MacLeod in view of FR'643(page 3 first paragraph) meets the structure limitation of the claimed pressurized air chamber for deflecting a thin wall of an expandable diaphragm.

Regarding claims 2, the workpiece lock device of MacLeod in view of FR'643 teach a workpiece piece surface for receiving the workpiece(i.e. the top surface and the seal around the top surface of the piston P as shown in Fig. 2 of FR'643).

Regarding claims 3 and 19, even though MacLeod in view of FR'643 do not explicitly teach the claimed clamping ring, one of ordinary skill in the art would have found it obvious to have incorporated the claimed clamping ring in order to restrain the workpiece from any vertical movements.

Regarding claims 4 and 20, since the apparatus of MacLeod in view of FR'643 is an electrochemical machining device, the electrical coupling of the workpiece with an anode contact is inherently present in order for the device to be operational.

Regarding claims 5 and 17, FR'643 further teaches allowing pressurized air to enter the expandable diaphragm to inflate the expandable diaphragm(abstract, page 3 second and third full paragraphs), which inherently teach the presence of pressurized air port as claimed.

Regarding claim 6, the thin wall of the expandable diaphragm as taught by MacLeod in view of FR'643 reads on the claimed thin wall configured to deflect in

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response to the pressurized air, which in turn causes the workpiece to position radially relative to the electrode assembly.

Regarding claims 7 and 10, the claimed length of deflection and the claimed positioning accuracy are considered process limitations in apparatus claims. As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Since the apparatus of MacLeod in view of FR'643 teaches all the structural limitations of the instant invention, the claimed length of deflection and the claimed positioning accuracy do not lend patentability to the instant apparatus claims absent of factual evidence indicating that the claimed length of deflection and positioning accuracy structurally affect the instantly claimed apparatus.

Regarding claim 8, even though MacLeod in view of FR'643 do not explicitly teach the thickness of the expandable diaphragm wall, the instant apparatus is not patentably distinct from the apparatus of MacLeod in view of FR'643. It is well settled that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). See MPEP 2144.04. In this case, the only difference between the apparatus of

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MacLeod in view of FR'643 and the apparatus of the instant invention is the dimension of the expandable diaphragm wall, and the expandable diaphragms of MacLeod in view of FR'643 and the instant invention functions in the same manner. Therefore, the instant apparatus is not patentably distinct from the apparatus of MacLeod in view of FR'643.

Regarding claim 9, even though MacLeod in view of FR'643 do not explicitly teach that the thickness of the thin wall does not vary by more than approximately 5-10 microns in any one place, one of ordinary skill in the art would have found it obvious to have incorporated an expandable diaphragm with uniform thickness as claimed in the electrochemical machining apparatus of MacLeod in view of FR'643 in order to assert consistent force to the accurately position the workpiece. In addition, MacLeod in view of FR'643 does not teach that the wall thickness of the expandable diaphragm is not uniform. Therefore, the examiner assumes that the wall thickness of the expandable diaphragm in the apparatus of MacLeod in view of FR'643 is uniform and does not vary by more than approximately 5-10 microns in any one place as claimed.

Regarding claim 21, the grooves of on the shaft of the bearing as taught by as taught by MacLeod in view of FR'643 reads on the claimed electrode passage since they create passages for electrolyte to flow to and from the workpiece for electrochemical machining to form patterns on the workpiece.

Regarding claim 22, the elastic material of the elastic hollow toric ring(i.e. pressurized air chamber with expandable diaphragm) as taught by MacLeod in view of

FR'643 forms a hydraulic seal between the elastic hollow ring and the workpiece about an entire outer circumference of the workpiece as claimed.

Regarding claim 23, the examiner takes the position that the clamping ring of MacLeod in view of FR'643 is capable of being lowered on top of the workpiece as claimed. In addition, lowering of the clamping ring on top of the workpiece is directed to how the claimed electrochemical machining system is being operated(i.e. process limitation), therefore, does not lend patentability to the instant apparatus claims absence of factual evidence that lowering of the clamping rings structurally affects the instant invention. See MPEP 2114[R-1].

Response to Arguments

7. Applicant's arguments filed 30 May 2006 have been fully considered but they are not persuasive.

In the remarks, applicant argues that the examiner simply restated the claim 1 language in alleging what FR'643 teaches. The intent of the examiner's doing so is to demonstrate how FR'643 structurally relates to the instantly claimed apparatus. In this Office Action, the examiner has reworded FR'643's teaching to more clearly link the specific teachings of FR'643 to the instantly claimed apparatus. The rejection ground still remains the same.

Applicant further argues that FR'643 does not teach a workpiece for electrochemical machining".

The examiner respectfully disagrees. Both MacLeod and FR'643 deal with how to securely grip and position the workpiece regardless of the purpose of the workpiece.

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FR'643 provides a mechanism to securely grip the workpiece without damaging its surface(abstract). Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the workpiece gripping mechanism as taught by FR'643 into the electrochemical machining apparatus of MacLeod in order to realized benefit FR'643's workpiece gripping mechanism.

In addition, the language" for electrochemical machining" merely states the intended use of the instant workpiece, therefore, does not lend patentability to the instant claim.

Furthermore, it is well settled that the inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). See MPEP 2115. Therefore, the workpiece for electrochemical machining as argued by the applicant does not bear patentable weight to the instant apparatus claims.

Regarding applicant's argument that FR'643 does not teach that its expandable diaphragm is configured to position the workpiece radially relative to an electrode assembly.

The examiner does not find applicant's argument persuasive since FR'643 teaches implicitly teach the radial positioning of the workpiece relative to the rest of the processing apparatus using the expandable diaphragm(Fig. 2). Therefore, when incorporated into the apparatus of MacLeod, it is examiner's position that the expandable diaphragm FR'643 still functions the same way, which is to radially position

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the workpiece relative to the rest of the processing apparatus of MacLeod, which is an electrode assembly.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

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